Work Order ID 56769

March 8, 2010 4:07:26 PM

Required Date: 26/03/2010



Page 1

Item ID:

D212-664-101

Accept



Setup Start



Revision ID:

Item Name: **Start Date:**

Crosstube Fwd

08/03/2010 Start Qty: 1.00

Req'd Qty: 1.00

Cust Item ID: Customer:

Reference:

Approvals:

Date: 10-3

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Stop

Sequence ID/ **Work Center ID**

Operation Description Set Up/ **Run Hours**

Draw Number

Draw Plan Rev. Code

Qty

Reject Accept Qty

Reject Number

Insp. Stamp

Draw Nbr

Revision Nbr

D212-664-141

Rev D

100

DC

DOCUMENT CONTROL

Memo

0.00

0.00

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

Document Control

110

Packaging Packaging

Pick Kit

Packaging

0.00

Memo

0.00

MB 10-03-22

120

CNC Bend 2

CNC Alpha 160 Bender

0.00

BENDING MACHINE - CROSSTUBES

Memo

0.00

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and

Folio FT015

UB 10-03-24

Dart A	Aeros	space	Ltd
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									T	
W/O:			WC	RK ORDER CHANG	ES	(B.1			· ·	
DATE	STEP	PRO	OCEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
Part No	:	PAR #:	Fault Cate	gory:	NCR: Yes	No DQA	.:	_ Date: _		
	Resolution: Disposition:				QA: N/C Closed: Date:					
NCR:		•	WORK ORDE	ER NON-CONFORMA	NCE (NCR)				
DATE	STEP	Description of NC		Corrective Action Section		Verifica	ation	Approval	Approval	
710	-	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section	n C	Chief Eng	QC Inspector	
							-			
							1			

March 8, 2010 4:07:26 PM

Item ID:

D212-664-101

Accept



Setup Start



Revision ID:

Item Name:

Crosstube Fwd

Start Date: 08/03/2010 Start Otv: 1.00 Reg'd Oty: 1.00

Cust Item ID: Customer:

Required Date: 26/03/2010

Reference: **Approvals:**

Process Plan:

Date:

Tooling:

Date:

Start

Run

Stop



Date:____

SPC (Y/N):

Set Up/

Run Hours

Date:

Stop

Sequence ID/ Work Center ID

130

OC

Quality Control

Operation Description

QC15- Crosstube Dimensional Check

Memo

Memo

DT8549

Draw Number

Draw Rev.

Plan Accept Code **Qty**

Reject **Qty**

Reject Insp. Number Stamp

140

Crosstubes

Crosstubes

Crosstubes

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 &

2-Ream hole to finish size in tube as per Dwg D212-664-141using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs. to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

Dart Aerospace Ltd	1
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W/O:			WO	RK ORDER CHANG	ES				
DATE	STEP	PRO	PROCEDURE CHANGE			Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	:	PAR #:	Fault Cateç	gory:	_ NCR : Yes	No DQ	A:	Date: _	
Resolution:			Disposition	1:	_ QA: N/C C	losed:		Date: _	
NCR:		,	WORK ORDE	ER NON-CONFORMA	NCE (NC	R)			
DATE	OTED	Description of NC	Corrective Action		on B	Verific	cation	Approval	Approval
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date	& Sect	ion C	Chief Eng	QC Inspector
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					1		·		

Work Order ID 56769

March 8, 2010 4:07:26 PM

Required Date: 26/03/2010



Page 3

Item ID:

D212-664-101

Accept



Setup Start



Revision ID:

Item Name: **Start Date:**

Crosstube Fwd

08/03/2010

Start Oty: 1.00

Reg'd Qty: 1.00

Cust Item ID:

Customer:

Draw

Number

Reference:

Approvals:

QC: ____

Process Plan:

Date:

Date:

Tooling:

SPC (Y/N):

Date:

Draw

Rev.

Plan

Code

Date:

Run

Reject

Qty

Start Stop

Stop



Insp.

Stamp

Reject

Number

Sequence ID/ Work Center ID

150

HandFXtube

Hand Finishing Crosstubes

Operation Description

Crosstubes Chemical Conversion

Set Up/ **Run Hours**

0.00

0.00

Memo

Chemical Conversion Coat within 24 hours of bending and drilling

160

170

QC

QC5- Inspect part completeness to step on W/O

0.00

Accept

Qty

Quality Control

Outsource process - NDT per QSI038 4.1

0.00

0.00

Outsource2

Outsource process - NDT

Memo

Memo

Liquid Penetrant Inspection as per QSI 038

LPI as per ASTM 1417 Level 2

Attach copy of NDT results to work order

CZ 10/4/06 0

	·pao								3 %
W/O:			WC	ORK ORDER CHANG	ES		••		٠.
DATE	STEP	PROCEDURE CHANGE				Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No):	PAR #:	Fault Cate	gory:	_ NCR: Yes	No DQ	A:	Date: _	
	R	esolution:	Disposition	n:	_ QA: N/C C	losed:		Date: _	
NCR:			WORK ORD	ER NON-CONFORMA	NCE (NCF	?)			
DATE	STEP	Description of NC			VP			Approval	Approval
DATE	SIEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign and Date	🖁 Sect	ion C	Chief Eng	QC Inspector
									79 000

N	ork	Orde	r ID	56769

March 8, 2010 4:07:26 PM



Page 4

Item ID:

D212-664-101

Accept



Setup Start

Stop



Revision ID: Item Name:

Crosstube Fwd

Start Date: 08/03/2010

QC:

Required Date: 26/03/2010

Start Qty: 1.00 Req'd Qty: 1.00



Cust Item ID: Customer:

Draw

Number

Reference:

Approvals:

Process Plan:

Date:

Date:____

Tooling:

Date:

Draw

Rev.

Plan

Code

Run

Reject

Accept

Qty

Start

Reject

SPC (Y/N):

Set Up/

Date:

Stop

Number Stamp

Insp.

Sequence ID/ Work Center ID

180

Packaging Packaging

Operation **Description**

Receive & Inspect for Damage & Mat'l Certs

Run Hours

0.00

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

190

QC5- Inspect part completeness to step on W/O

0.00

QC

Memo

0.00

Quality Control

Inspect for damage & ensure results are as per Dwg D212-664-141

	D	art	t A	ere	os	pa	ce	Ltd
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W/O:			WC	ORK ORDER CHANG	ES					*
DATE STEP		PRO	PROCEDURE CHANGE			1	Date	Qty	Qty Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	:	PAR #:	Fault Cate	gory:	_ NCR: Ye	es No	DQ.	\:	Date:	
	Re	esolution:	Dispositio	n:	_ QA: N/C	Clos	ed:		Date:	
NCR:		•	WORK ORD	ER NON-CONFORMA	ANCE (N	CR)				
DATE	STEP	Description of NC Section A	Initial Chief Eng	Corrective Action Section Description Chief Eng	Sig	n & ate	Verific Section		Approval Chief Eng	Approval QC Inspector

Work Order ID 56769

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Item ID:

D212-664-101

Accept



Setup Start



Revision ID:

Item Name:

Crosstube Fwd

Start Date: 08/03/2010

Start Oty: 1.00

Required Date: 26/03/2010 Req'd Oty: 1.00



Cust Item ID:

Customer:

Draw

Number

Reference:

Approvals:

Process Plan:

QC:

Date:

Date:

Tooling:

SPC (Y/N):

Date:

Date:

Draw

Rev.

Plan

Code

Start

Stop

Sequence ID/ **Work Center ID**

200

SprayPaint **Spray Painting**

Operation Description

Spray Painting per QSI005 4.2

Memo

SprayPaint

Set Up/ **Run Hours**

0.00

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: \$30 Fininsh Time: 9 \30

PAINT:

Start Time: 2'00 Finish Time: 3:00

210

QC14- Inspect Spray Paint

0.00



Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

Run

Reject

Qty

Stop

Reject Insp. Number

Stamp

Accept

Qty

AT 10-04-09

Dari Aerospace Liq	Aerospace Ltd	pace	Aeros	Dart
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W/O:			WC	RK ORDER CHANG	ES				
DATE	STEP	PRO	OCEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No	•	PAR #:	Fault Cate	jory:	_ NCR: Yes	No DQ	A:	Date:	
	Res	solution:	Disposition	n:	_ QA: N/C C	losed:		Date: _	
NCR:		•	WORK ORDI	R NON-CONFORM	ANCE (NC	R)			
DATE	STEP	Description of NC Section A	Initial	Corrective Action Sect Action Description	ion B Sign	& Secti	cation on C	Approval Chief Eng	Approval QC Inspector
· 1			Chief Eng	Chief Eng	Date			Office Ling	QO INSPECTOR
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Work	Order	ID	56769

March 8, 2010 4:07:26 PM

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Item ID:

D212-664-101

Accept

Setup Start

Stop



Revision ID:

Item Name: Crosstube Fwd

Required Date: 26/03/2010

08/03/2010

Start Qty: 1.00

Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Start Date:

Approvals:

Process Plan: Date: Tooling:

Date: ____

SPC (Y/N):

Date: Date:

Stop



QC: ____

Sequence ID/ **Work Center ID**

220

Crosstubes Crosstubes

Operation Description

Crosstubes

Set Up/ **Run Hours**

Draw Number

Plan Draw Rev. Code Accept Qty

Reject Qty

Run

Reject Number

Insp. Stamp

0.00

0.00

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area

with 41058 wash 'n' wipe

2-Install supports with magnobond as per QSI 015 Adhere for for 12 Hrs Batch: 112417 exp:01/2011 A/R 6398 Magnobond

230

QC

Quality Control

QC5- Inspect part completeness to step on W/O

240

Pick Kit

0.00

Packaging

Memo

Memo

0.00

(11/4/8-0)

Packaging

Dart A	Aerospace	Ltd
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W/O:			WORK ORDER CHANGES											
DATE	STEP	PR	OCEDURE CHAI			Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
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Part No	:	PAR #:	Fault Cate	gory:	_ NCF	t: Yes	No DQ	A:	_ Date: _					
	Re	esolution:	Disposition	1:	_ QA:	N/C CId	sed:		Date: _					
NCR:			WORK ORDE	R NON-CONFORM	ANCE	(NCR)							
		Description of NC		Corrective Action Section			Varification	ation	Approval	Approval QC Inspector				
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Verification Section C	Chief Eng						

1														

Work Order ID 56769

March 8, 2010 4:07:26 PM

Required Date: 26/03/2010



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Item ID:

D212-664-101

Accept

Setup Start

Stop

Revision ID:

Item Name: Crosstube Fwd

08/03/2010 Start Qty: 1.00

Req'd Qty: 1.00

Cust Item ID: Customer:

Reference:

Start Date:

Approvals:

Process Plan:

Date:____

Tooling:

Date:

Run Start

OC:

Date:____

SPC (Y/N):

Date:

Stop

Reject

Qty

Sequence ID/ **Work Center ID**

250

OC

Quality Control

Operation Description

QC4- 100% Inspect kits for completeness

Memo

Set Up/ **Run Hours**

Draw

Draw Number Rev.

Plan Code

Accept Qty

Reject Number

Insp. Stamp

0.00

260

Packaging

Packaging

Memo

0.00

0.00

Packaging

Identify and pack for shipping as per PPP D212-664-101

270

QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

MUE Eroffsel

Dart	Aeros	pace	Ltd
	, 10, 00	pavo	

W/O:			WORK ORDER CHANGES									
DATE	STEP	PRO	OCEDURE CHAI	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		

Part No			Fault Categ	Jory:	NCR: Yes No DQA: Date							
	Re	esolution:	Disposition	n:	QA: I	WC Clo	sed:		Date:			
NCR:			WORK ORDE	R NON-CONFORM	ANCE	(NCR)				*		
DATE	STEP	Description of NC		- 174-14.	tion B		Verific	ation	Approval	Approval		
DAIL	JILI	Section A	Section A Initial Action De Chief Eng Chief					n C	Chief Eng	QC Inspector		
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	-											
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Picklist Print

March 8, 2010 4:07:08 PM

Work Order ID: 56769

D212-664-101

Parent Item Name: Crosstube Fwd

Comments:

Parent Item:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM JLM

IPP Rev:G 07-04-30 As per Rev C

Start Date: 08/03/2010

Required Date: 26/03/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/	Replacement	Mfg/	Bin	Primary	Last	Route	Unit of	Qty on	Remaining	Otv	Date	Status
D212-664-101TRN		Manufactured	No			110	Each	0.0000	1.0000			Status
										B56560	MB	10-03-23
Crosstube Turning Detail											1	<u> </u>
D3595-063-450		Manufactured	No			230	Each	107.6966	4.2105			

RUBBER CUSHION

Warehouse Location	Loc Oty	Loc Code	Λ
Main Warehouse			M 10- 04-0
LG	6.72767369		 -
52447	6.72767369		
Main Warehouse			
ST	100.9689		
38959	2		
43210	2.59		
46465	0.3789		
53775	96		

07

Dart Ae	rospace	Ltd							· · · · · · · · · · · · · · · · · · ·				
W/O:		WORK ORDER CHANGES											
DATE	STEP	PRO	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector						
· · · · · · · · · · · · · · · · · · ·			N										
Part No):	PAR #:	Fault Cate	gory:	NCR: Yes	No DQ	\:	Date:					
	Re	esolution:	Disposition	QA: N/C Closed: Da									
NCR:		V	VORK ORDE	ER NON-CONFORMAI	NCE (NCF	R)							
		Description of NC		Corrective Action Section	า B	Verific	ation	Approval	Approval				
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign 8 Date	Section		Chief Eng	Approval QC Inspector				
	7												
					-								

Picklist Print

March 8, 2010 4:07:08 PM

Page 2

Work Order ID: 56769

D212-664-101



Parent Item Name:

Crosstube Fwd

Comments:

Parent Item:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM As per Rev C

IPP Rev:G 07-04-30

JLM

Start Date: 08/03/2010

Required Date: 26/03/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ MS21920-25

Replacement Mfg/

Purchased

Bin Primary No

Last Route 220

Unit of Each

Qty on 172.0000 4.0000

Remaining

Qty

Date Status

Clamp(per MIL-DTL-8783C)

Warehouse Location	Loc	<u>Oty</u>	Loc Code		
Main Warehouse					
CA		25			
113744		25			
Main Warehouse					
ST		147			
108111		3			
108975		17			
109181		42			
109644		10			
113281		25			
113282		50			
	220	Cook	(0.0000	2 0000	

D2893-1

2.75 Support



Manufactured

220

Each

68.0000 2.0000

Warehouse Location	Loc Qty	Loc Code	
Main Warehouse			
ST	68		
25657	6		
51775	13		
53125	19		
53340	10		
53774	20		

Dart Aerospace Ltd

	·												
W/O:			WORK ORDER CHANGES										
DATE	STEP	PR	OCEDURE CHAI	NGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector			
Part No	:	PAR #:	Fault Cated	jory:	_ NC	R: Yes	No DQ .	A :	_ Date: _				
	Resc	olution:	Disposition	n:	_ QA	: N/C Cld	sed:		Date: _				
NCR:			WORK ORDE	R NON-CONFORM	ANCE	(NCR)						
DATE	0.750	Description of NC		Corrective Action Sect	ion B		Verificatio		1 Approval	Approval			
DATE	STEP	EP Description of NC Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date		ion C	Chief Eng	QC Inspector			
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Picklist Print

March 8, 2010 4:07:08 PM

Page 3

Work Order ID: 56769

D212-664-101



Primary

Parent Item Name:

Crosstube Fwd

Comments:

Parent Item:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM JLM

No

IPP Rev:G 07-04-30

As per Rev C

Manufactured

Purchased



Start Date: 08/03/2010

Required Date: 26/03/2010

Required Qty: 1.00

Start Qty: 1.00

Component Item ID/ D3428-1

Replacement Mfg/

Bin No Last

Route 240

Unit of Each

Qty on 19.0000

Loc Code

Remaining 1.0000

Qty

Date

5 (L. 194/8

Status

Placard

Warehouse

Location

Main Warehouse

ST096

55565

19

Loc Qty

56

6

20

30

240

19

Each

Loc Qty

56.0000 4.0000

BOLT

AN6-35A

Warehouse Location Main Warehouse

ST

112314 112805 113422

Loc Code

Dart Aerospace L	_td
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W/O:		WORK ORDER CHANGES											
DATE	STEP	PRO	OCEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector				
													
		PAR #: Fault Category: NC					A :	Date:					
	Resc	olution:	Disposition	li	_ QA: N/C CI	osed:		Date: _					
NCR:			WORK ORDE	R NON-CONFORMA	ANCE (NCF	₹)							
DATE	STEP	Description of NC			ion B	Verific	cation	Approval	Approval				
		Section A	Initial Chief Eng	Action Description Chief Eng	Sign 8 Date		ion C	Chief Eng	QC Inspector				
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						:							

Picklist Print

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Page 4

Work Order ID: 56769

Parent Item:

D212-664-101

Parent Item Name:

Crosstube Fwd

Comments:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM JLM

Bin

No

IPP Rev:G 07-04-30

As per Rev C



Start Date: 08/03/2010

Required Date: 26/03/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ AN6-36A

Replacement Mfg/

Purchased

Primary

Last Route 240

Unit of Each

Qty on 87.0000 Remaining Qty 4.0000

Date

Status

Bolt

Warehouse	Loc Oty	Loc Code	
Location			
Main Warehouse			
ST	87		
109632	1		
110382	2		
110014			

MS21042L6

Nut

Purchased	No	113121	240	50 Each	364.0000	6.0000

Warehouse	Loc Oty	Loc Code	
Location			
Main Warehouse			
ST	364		
105077	22		
110002	5		
111578	337		11/1578

Dart Aer	ospace	Ltd
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Dart Ae	rospace	Ltd								3 - 54 1 ,
W/O:			WO	RK ORDER CH	ANGES					
DATE	STEP	PRO	OCEDURE CHAN	IGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No		PAR #:								
	R	esolution:	Disposition	:	QA	N/C Cld	sed:		Date: _	
NCR:		,	WORK ORDE	R NON-CONFO	RMANCE	(NCR)			
DATE	STEP	Description of NC Section A	Initial	Corrective Action Action Descrip	Section B	Sign &		cation ion C	Approval Chief Eng	Approval QC Inspector
			Chief Eng	Chief Eng		Date			Onioi Eng	QU'IIISPECIOI
į										

Picklist Print

March 8, 2010 4:07:08 PM

Work Order ID: 56769

Parent Item:

D212-664-101

Parent Item Name:

Crosstube Fwd

Comments:

IPP Rev:E□04.02.16□Reformat□KJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM As per Rev C

IPP Rev:G 07-04-30

JLM

Component Item ID/ AN960JD616

Replacement Mfg/

Purchased

Bin Primary No

Last

113149

Route 240

Unit of Each

Qty on

Remaining 313.0000 18.0000

Qty

Start Date: 08/03/2010

Start Qty: 1.00

Date

Required Date: 26/03/2010

Required Qty: 1.00

Status

Page 5

Washer

Warehouse	Loc Qty	Loc Code
Location		
Main Warehouse		
ST	313	
112314	3	
112828	10	

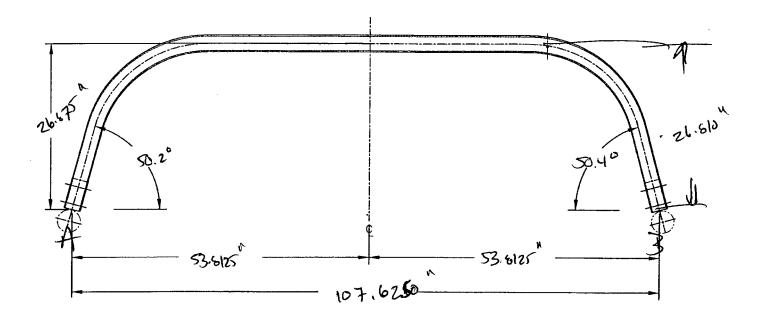
300

Dart Aerospace Ltd	Dart	Aeros	pace	Ltd
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Dart Ae	rospace	Ltd								
W/O:			WO	RK ORDER CHA	NGES					-1
DATE	STEP	PRO	OCEDURE CHAN	IGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
			· · · · · · · · · · · · · · · · · · ·			-				
Part No		PAR #:	Fault Categ	ory:	NCF	R: Yes N	No DQ	A:	Date:	
	Re	esolution:	Disposition	:	QA:	N/C Clo	sed:		Date:	
NCR:				R NON-CONFOR						
DATE	STEP	Description of NC	Initial	Corrective Action	Section B	Sign &		cation	Approval	Approval
		Section A	Chief Eng	Action Descripti Chief Eng	lon	Date	Sect	on C	Chief Eng	QC Inspector
						- i.				

DART AEROSPACE LTD	Work Order:	4,169
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev:		Page 1 of 1
10.B.L.		

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



 Comments				
 N 44 44				
				
				
QC15 Inspection Date				

Rev	Date	Change	Revised by	Approved
Α	07:02.06	New Issue	KJ/JM ,	1
В	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	ha
			· · ()	

Item	Qty -141	Qty -141B	Part Number	Description
1	х		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	_ 1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6005-128 FINISHED LENGTH = 126.514±0.020

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART QSI 005 4.2

- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664) D212-664-1418 = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING

SHOP COFY RETURN TO **ENGINEERING** IMPOUNTROLLED COPY

O AMENDMENT

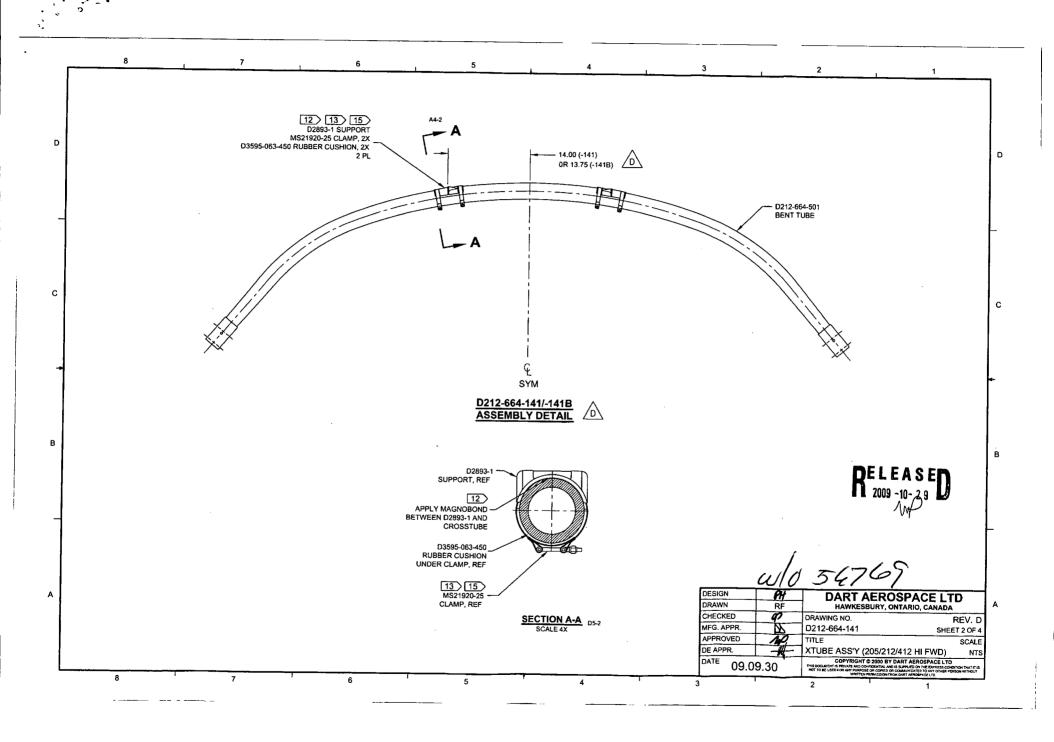
NOTICE

V & CADER

D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD .1418 (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & 86-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4							
С		VE -851 ABRA CUSHION, RE	PH	07.03.08				
В	ADD H SKIDTI	OLES FOR C	PH	05.02.04				
Α	NEW IS	SSUE	PH	00.12.12				
REV.			BY	DATE	ı			
DESIGN		PH	DART AEROSPA	ACE	LTD			
DRAWN		RF	HAWKESBURY, ONTARI	O, CANA	ADA	,		
CHECKE	D	q)	DRAWING NO.		REV. D			
MFG. AP	PR.	77	D212-664-141	s	HEET 1 OF 4			
APPROVED NO TITLE					SCALE			
DE APPR. XTUBE ASS'Y (205/212/412 HI FWD) NTS								
OATE 09.09.30 PROGRAMMENT OF SOOR BY DART AEROSPACE LTD PROGRAMMENT OF WINTER CONTROL AND IS ADVANCE ON THE OPPRASS CONDITION THAT IS NOT TO BE USED THAT ANY PRIMED PRESSAGE AND PRIME ADVANCE OF THE PRIMED PRIMED ANY PRIMED PRIMED AND PRIMED PROGRAMMENT OF THE PRIMED ANY PRIMED PRIMED AND PRIMED PRIMED ANY PRIMED PRIMED AND PRIMED PRIMED ANY PRIMED PRIMED AND PRIMED PRIMED AND PRIMED PRIMED AND PRIMED P								

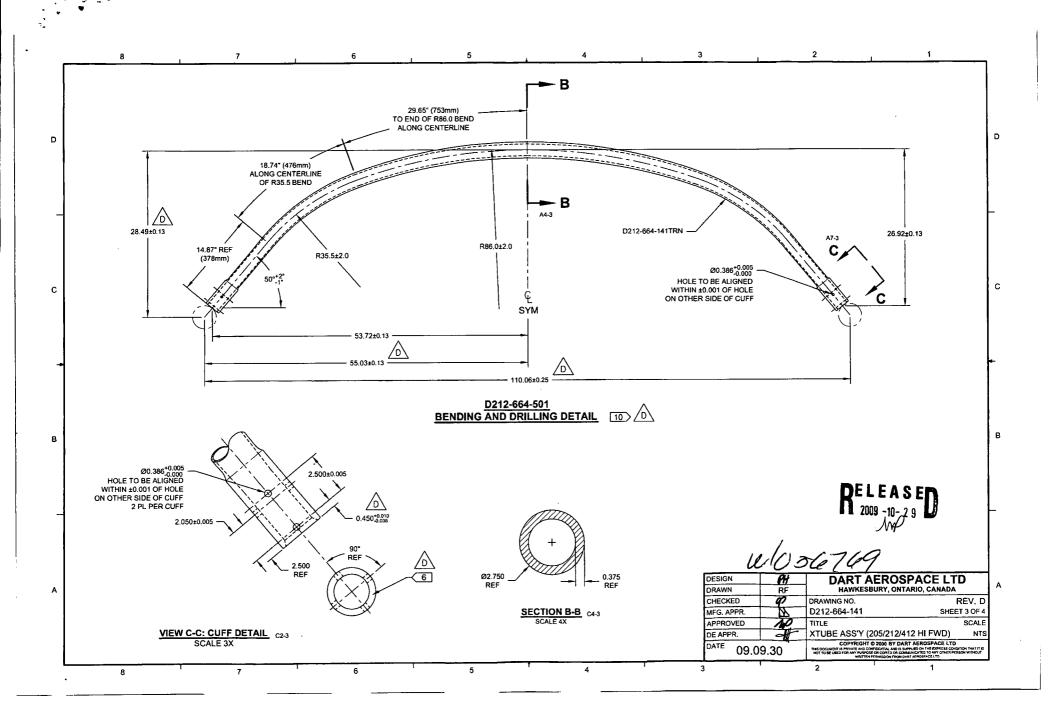
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W/O:			W	ORK ORDER CHANG	SES			#		
DATE	STEP	PRO	OCEDURE CHA		В	y	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
Part No	•	PAR #:	Fault Cate	gory:	_ NCR: Y	es N	o DQ	A:	Date:	1
	Re	solution:	Dispositio	n:	QA: N/	C Clos	sed:		Date: _	
NCR:			WORK ORD	ER NON-CONFORM	ANCE (N	ICR)			Pi.	
DATE	STEP	Description of NC	Initial	Corrective Action Sec Action Description	tion B	gn &		cation	Approval	Approval
		Section A	Chief Eng	Chief Eng		Date	Secti	on C	Chief Eng	QC Inspector
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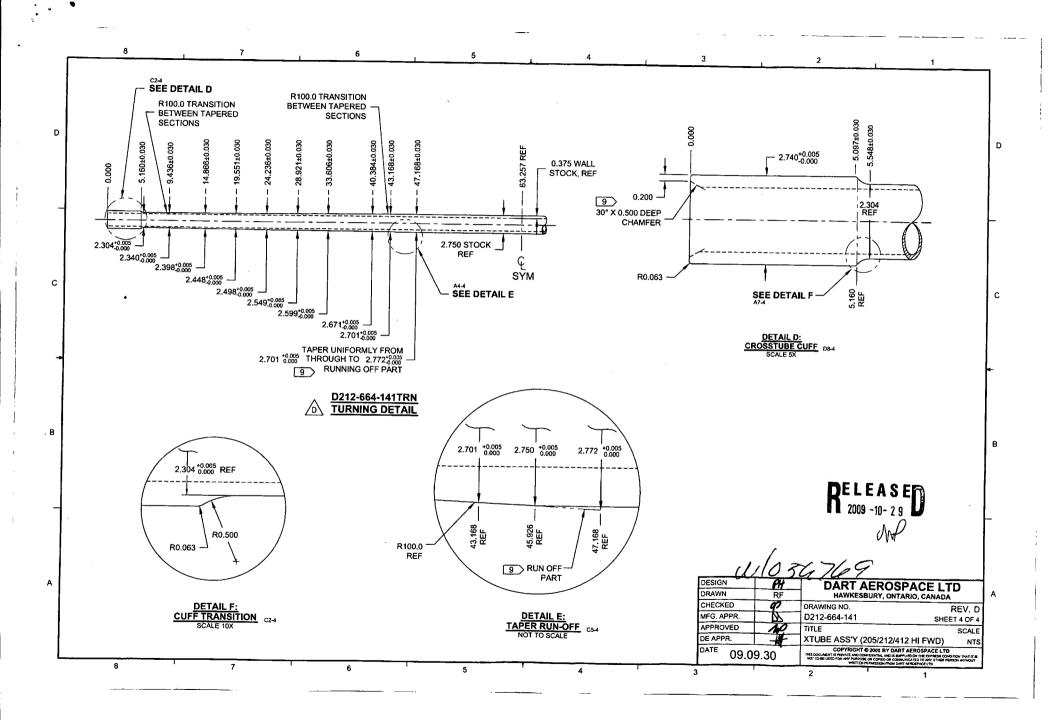
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W/O:			WORK ORDER CHANGES									
DATE	STEP	PRO	OCEDURE CHAN	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector			
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Part No	:	PAR #:	Fault Categ	jory:	NCR: Yes	No DQ /	A :	Date:				
	Res	solution:	Disposition	l:	QA: N/C Clo	osed:		Date: _				
NCR:			WORK ORDE	R NON-CONFORMA	NCE (NCR)						
DATE ST	STEP	Description of NC		n B	Verific	ation	Approval	Approval				
		Section A	Initial Action Description Chief Eng Chief Eng		Sign & Date			Chief Eng	QC Inspecto			
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Dart Aerospace	Ltd
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W/O:			WORK ORDER CHANGES									
DATE	STEP	PRO	OCEDURE CHA	NGE	Ву	Date	Ate Qty Approval Chief Eng / Prod Mgr					
Part No	•	PAR #:	Fault Cate	gory:	_ NCR: Yes	No DQ	A:	Date:				
			Disposition: Q			QA: N/C Closed: Date:						
NCR:			WORK ORDER NON-CONFORMANCE (NCR)									
DATE	STEP	Description of NC		Corrective Action Section		Verifi	cation	Approval	Approval			
DAIL	SILF	Section A	Initial Chief Eng	Action Description Chief Eng	Sign Date	& Sec	Section C Chief Eng		QC Inspector			
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LIQUID PENETRANT TEST REPORT

P- 15321

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CLIENT	AT AEN STACE		_ DATE	Per 6-20,0	TIME AM @	PM 🗆
ATTENTION	-INDA /CHAN	TEL	ACUREN JOB NO.	188-10		
Address 127	ABELDEEN.	570	_ PO/WO No.	-		
HANN	ES BULY ON.	KGH 1K7	Work Location		WKESBUR	
/ /			ACCEPTANCE STD.	ASTM 1417	REV./DATE	70:07
PROJECT	FPI	, 02	Closs 70	· ·		
ITEM(S) EXAMINED		4Pc				
JOB DESCRIPTION	PROCEDURE NO. L	Τουο 2 Rev./Date	TEC	CHNIQUE NO. LT-164	2. Rev./Date	
Part No.				E Suninum Ti	HICKNESS	
SCOPE VI				FENETLANT		
	TION CAPLIE					
TEST DETAILS						
METHOD	FLUORESCENT	☐ ViSiBLE	WATER WASH	☐ SOLVENT REI		OST EMULSIFIED
FAMILY BRAND MAS	NA FLUX		BLACK LIGHT S/N /	6459 □ OUTPUT > 10	U0 μ W/CM ⁴	BIENT < 2 fc) fc @ SURFACE
PENETRANT 2 L G	7 MINIMUM DWELL TI 2() MINIMUM DRY TIME		I. LIGHTING EQUIP. U	Biro		
DEVELOPER SKI)	52 MINIMUM DWELL TI	ME 10 MIN		1098866	CAL DUE DATE	
DEVELOPER TYPE	NON AQUEOUS AQUEOUS	☐ DRY			MAY. 7	- AU10
TEST SURFACE	As Cooling T. A.	S WELDED	Machined	☐ SHOT BLASTED	☐ CLEAN B	ARE MET AL
SURFACE CONDITION		s Welded 4°C/ 20°F to 10°C/5		☑ 10°C/50°F TO 52°C/12		
	METRIC IMPERIAL)					
1 Closs 7436	= -WO. 56769					
	=-W.O. 56768	,				
	=-w.o. 57025	_	·			
1 ICLOSS Tul	BE-W.O. 57024	f //				
Scope of Services The agreement of Acuren Group Inc. to p	erform services extends only to those servi	es provided for in writing. U	nder no circumstances shall such	services extend beyond the performan	ce of the requested services. It	t is expressly understood in they be construed as
that all descriptions, comments and expro representations or warranties. Acuren G data or other information provided by Ac	essions of opinion reflect the opinions or ob roup inc. is not assuming any responsibilit uren Group Inc. In no event shall Acuren C ren Group Inc. uses the degree, care and sk	servations of Acuren Group I ies of the owner/operator and Group Inc.'s liability in respec	nc, based on information and ussu the owner/operator retains compl A of the services referred to herein	umpirions supplied by the objection lete responsibility for the engineering, resceed the amount paid for such serv	manufacture, repair and use d ives.	decisions as a result of th
SIGNATURES						
CLIENT REPRESENTATIVE	MAHLEW NWE	DOCH MIC	The Mules	DTR	(# 三-27)	3 74
TECHNICIAN (SIGNATURE):				REPORT REVIEWED BY:		
NAME (PRINT):	MIKE Jothus	Tim		TALVILLAVED BY.	NAME	INITIALS
V	CGSB LEVEL SNT L	COCC	2 ^{NO} TECHNICIAN S LEVEL SNT LE	EVEL .		
	CGSB LEVEL SNT L CGSB REG. NO GC		REG. NO			



LIQUID PENETRANT TEST REPORT

P- 15321

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CLIENT	Sat de la	_		16 (-	PAGE OF
ATTENTION	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Da ⁻		HER 6-2010	TIME AM D PM O
ADDRESS	100 48 10 EE ST		UREN JOB NO.	1002 - 10	- 0743
142	when Bully ON KICH	6 (00	/WO No.	E//3 13	1.000
/ / / /	SKE) Oux., CD = K (6/7		ORK LOCATION		KESBURT
PROJECT	FPI		CEPTANCE STD.		REV./DATE 2007
ITEM(S) EXAMINED		4Pcs	<u> </u>	<u>u 055</u>	
JOB DESCRIPTION	PROCEDURE NO. LTOUG 2	REV./DATE	Т	ECHNIQUE NO. LT-(GH 2	REV /DATE
PART No.				is Acuminum THI	
SCOPE	WET FLOUR ES	CENT	41 Qui	DEPETLANT	SKNLOO
_ I. S.	ELTION CARZIED OF	~T 100			
TEST DETAILS					
METHOD	☐ FLUORESCENT ☐ VISIB		WATER WASH	☐ SOLVENT REMO	VABLE POST EMULSIFIE
FAMILY BRAND 21	45NA FLUX - 67 MINIMUM DWELL TIME 45	BLA 10 Min. Lig	CK LIGHT S/N	/6 45 9 ロ OUTPUT > 1000	μW/cm² ☐ AMBIENT < 2 fc
PENETRANT REMOVER	11.5		HER L/4	PLASHLIGHT I TROUBLELIGH 18 // C	OUTPUT>100 fc @ SURFAC
DEVELOPER S/		10 Min. Lig	HT METER S/N	1098866	CAL DUE DATE
DEVELOPER TYPE TEST SURFACE	Non Aqueous 🖸 Aqueous	DRY			1144.7-7010
	☐ AS GROUND ☐ AS WELDED		MACHINED	☐ SHOT BLASTED	3 O
SURFACE TEMPERATURE	□ < -4°C/20°F □ -4°C/20°F		MACHINED	☑ 10°C/50°F TO 52°C/125°	CLEAN BARE METAL F
RESULTS-	(METRIC IMPERIAL)				
1 025572 1 085572	3E-WO. 56768 3E-W.O. 56768 3E-W.O. 57025 3E-W.C. 57024			<i>()</i>	
representations or warranties. Acure data or other information provided by Standard of Care In performing the services provided, implied, is made or intended by Acur	to perform services extends only to those services provided for expressions of opinion reflect the opinions or observations of A or Group luc, is not assuming any responsibilities of the owner y Acuren Group luc. In no event shall Acuren Group luc, is liat Acuren Group luc, is liat Acuren Group luc, which degree, care and skill ordinarily exen Group luc.	taren Group the, bases of toperator and the owner/s bility in respect of the serv	nt information and assu operator retains comple vices referred to herein	un:ptions supplied by the owner/operator an lete responsibility for the engineering, manu- texceed the amount paid for such services.	d are not intended nor can they be construed a facture, repair and use decisions as a result of
SIGNATURES					
CLIENT REPRESENTATIV	E MANTEN STREET	Matti	MVA WG A	J- DTR#	巨一分374
TECHNICIAN (SIGNATURE):			3/3/04/345	REPORT	
NAME (PRINT):	MAE Jothe Stew			REVIEWED BY:	NAME INITIALS
	1 TECHNICIAN CGSB LEVEL SNT LEVEL	00001-	2"- TECHNICIAN		NAME INITIALS
	CGSB REG. NO	_ CGSB LEVEL CGSB Reg. No.	SNT LEV	VEL	